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Instructions for use

REVISION OF THE ICHNEUMONFLIES OF THE TRIBE GLYPTINI OCCURRING IN JAPAN (HYMENOPTERA : ICHNEUMONIDAE)

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The tribe Glyptini is a characteristic group of the subfamily Lissonotinae, being distinguishable from any other tribes of the subfamily by the paired oblique impressions of the median tergites and the lateral keels of the basal tergite. So far as known, the species of the tribe appear to be solitary endoparasites of lepidopterous larvae, especially those within rolled leaves or similar retreats. The parasite larva leaves the host body before the latter finishes the spinning of the cocoon, and pupates within the leaf rolled by the victim.

As far as I am aware, only six species of this group have been recorded from Japan by Ashmead (1906), Matsumura (1912) and Uchida (1928, 1932 and 1940), and yet there has been retained some taxonomic confusion among the members of the group. On this occasion will be given a preliminary revision on the Japanese species of the tribe. The holotypes of the new species described herein after will be deposited in the collection of the Entomological Institute, Hokkaido University, Sapporo.

I am much grateful to Prof. Emeritus T. Uchida and Prof. C. Watanabe, Hokkaido University, and Prof. K. Iwata, Hyogo University of Agriculture, for their continuous direction. My great indebtedness should also be expressed to Dr. H. Townes, University of Michigan, Dr. R. Obrtel, Brno, Dr. Shui-chen Chiu, Taiwan Agricultural Research Institute, and Dr. J. Minamikawa, Tokyo, for their kindness in various ways.

Key to the genera of Japan

1. Vertex deeply concave behind ocellar triangle, with three teeth at bottom of the concavity. Occipital carina strongly dipped downward at middle and touching occipital foramen. Prepectal carina absent. Clypeus with apical margin excised at middle. Areolet absent. Occipital carina erased apically. *Cephaloglypta* Obrtel.
- Vertex without a strong concavity or teeth behind ocellar triangle. Occipital carina neither dipped downward at middle nor touching occipital foramen. Prepectal carina present. 2.
2. Clypeus with apical margin excised at middle. Occipital carina sharp and complete, meeting hypostomal carina distinctly behind base of mandible. Tergite 5 in ♀ not retracted, nearly as long as tergite 4. Nervellus with discoidella above or near its middle. Areolet present. *Teleutaea* Förster.
- Clypeus with apical margin convex at middle. Occipital carina obsolescent at middle, meeting hypostomal carina at base of mandible or nearly so, very rarely obsolescent apically. Tergite 5

in ♀ strongly retracted, less than half as long as tergite 4. Nervellus with discoidella near its bottom. Areolet absent, or rarely present. *Glypta* Gravenhorst.

Genus *Teleutaea* Förster

Teleutaea Förster, 1868, Verh. Naturh. Ver. Preuss. Rheinlande 25: 164. [Type-species: *Glypta striata* Gravenhorst].

Hoplitophrys Förster, 1868, Verh. Naturh. Ver. Preuss. Rheinlande 25: 164. [Type-species: *Glypta brischkei* Holmgren].

Glyptopimpla Morley, 1913, Fauna of British India, Hymenoptera 3 (1): 209. [Type-species: *Glyptopimpla prima* Morley].

The type-species of *Hoplitophrys* with its related species differs remarkably from the type-species of *Teleutaea* in having the antennal socket prolonged upwardly on the upper side, forming a conspicuous projection. As the difference has, I believe, no generic value, I am much inclined to the opinion that the two should be combined in a single genus as Hellén (1915) already treated.

This genus seems to be confined to the Palaearctic and Oriental regions. There occur five species in Japan, which may be distinguishable by the following key:—

Key to the species of Japan

1. Frons with a distinct, strongly compressed lateral projection near antennal socket, the socket strongly prolonged upwardly, forming a tubercled projection. *uchidai*, sp. nov.
- Frons without a lateral projection near antennal socket. 2.
2. Mesopleurum with a large, yellow ventral spot. Tergite 5 in ♀ with distinct oblique impressions. Antennal socket simple. 3.
- Mesopleurum without a large, yellow ventral spot. Tergite 5 in ♀ without distinct oblique impressions. Antennal socket either prolonged upwardly or simple. 4.
3. Punctures on lateral lobe of mesoscutum and on the yellow spot of mesopleurum fine, separated one another by much more than their diameter in general. Tergite 1 with lateral keels obsolescent behind spiracles. Propodeum with a yellow band along transverse subapical carina. Scutellum wholly yellow. Tergites 1 to 3 with a complete yellow band at apex, the band broadened on each side. Flagellum reddish brown. *striata* (Gravenhorst).
- Punctures on lateral lobe of mesoscutum and on the yellow spot of mesopleurum coarse, separated one another by less than their diameter in general. Tergite 1 with lateral keels complete from base to apex. Propodeum without a yellow band. Scutellum yellow along lateral margin. Tergites 1 to 3 with an incomplete yellow band at apex, the band strongly reduced on each side. Flagellum black. *minamikawai*, sp. nov.
4. Frons flat. Antennal socket simple. Epomia weak, not tubercled at upper end. Mesopleurum with punctures a little coarser than those on mesoscutum. Tergite 2 in ♀ about as long as wide. *sachalinensis* Uchida.
- Frons concave medially. Antennal socket strongly prolonged upwardly, forming a tubercled projection. Epomia strong, subtubercled at upper end. Mesopleurum with punctures distinctly coarser than those on mesoscutum. Tergite 2 distinctly longer than wide. *brischkei* (Holmgren).

1. *Teleutaea sachalinensis* Uchida

Teleutaea sachalinensis Uchida, 1928, Jour. Fac. Agr., Hokk. Imp. Univ. 25: 65.

As a supplement to the original description the following accounts will be given:—

♀. Frons flat. Antennal socket simple. Epomia weak, not tuberculed at upper end. Mesoscutum with fine and dense punctures. Mesopleurum a little more coarsely punctate than mesoscutum. Metapleurum and propodeum with dense but separated punctures. Subapical transverse carina of propodeum complete, stronger medially. Tergites 1 to 4 partly heavily punctate and partly striate-punctate, strongly mat. Tergite 1 about 1.2 as long as wide, its lateral keels complete from base to apex. Tergites 2 and 3 about as long as wide or a little longer than wide, their oblique impressions less sharp and median lobes not carinate at base. Tergite 5 strongly transverse, with no oblique impressions. Fore wing 8.5 mm.

Black. Palpi piceous brown. Mandible yellow, with teeth darker. Clypeus brown apically. Pronotal collar, pronotum along upper margin and at lower angle, propleurum along apical margin, tegula, subtegular ridge, mesoepimeron, scutellum on lateral side, and tergites 4 to 6 at apex, yellow. Antenna black. Legs yellowish brown. Middle and hind coxae piceous apically, with a large, yellow basal patch, the patch of middle coxa extensive and indefinite. Middle and hind trochanters yellow apically, piceous basally. Fore and middle tarsi weakly fuscous. Hind femur red, infuscated on outer side, darkened at base and at apex. Hind tibia and tarsus blackish, the former yellow at base and on flexor surface from base to near apex.

Specimens examined: 1♀ (type of *sachalinensis*), Kawakami, Saghalien, 30. vii, 1928, T. Uchida leg.; 3♀, Yamabe, Hokkaido, 20. vi, 1959, C. Nishiguchi leg., bred from *Choristoneura coniferana*.

Hosts: *Choristoneura coniferana* Issiki.

This species is new to Japan.

Distribution: Japan (Hokkaido) and Saghalien.

2. *Teleutaea minamikawai*, sp. nov. (Fig. 1, A-B)

♀. Frons flat, with an oblique lateral impression along upper margin of antennal socket, the socket simple. Face with fine but distinct punctures. Epomia sharp, subtuberculed at upper end. Mesoscutum with rather coarse but dense punctures. Mesopleurum with punctures much coarser than those on mesoscutum, separated one another by less than their diameter in general. Metapleurum and propodeum with very coarse and dense punctures that are tending to be confluent in general. Subapical transverse carina of propodeum sharp at middle, obsolescent on each side of dorsal portion of propodeum. Tergites 1 to 4 heavily punctate. Tergite 5 more weakly punctate than the preceding tergites. Tergite 6 feebly mat, with fine punctures. Tergite 1 about 1.3 as long as wide, its lateral keels complete from base to apex. Tergites 2 and 3 about 1.2 as long as wide, their oblique impressions very strong and median lobes sharply carinate at base. Tergite 5 about 0.9 as long as wide, with shallow, indefinite oblique impressions. Fore wing 9–10.5 mm.

Black. Palpi, mandible except teeth, clypeus, cheek along mandibular base, pronotal collar, pronotum along upper margin broadly and at lower angle, propleurum along apical margin, tegula, subtegular ridge, scutellum along lateral margin, postscutellum, a large ventral spot of mesoscutum, mesoepimeron, a small spot of metapleurum just above base

of hind coxa, tergites 1 to 3 apico-medially, and tergites 4 to 6 at apex, yellow. Antenna black. Fore and middle legs reddish brown, with coxae and trochanters yellow. Middle tarsus dark brown. Hind coxa red, somewhat piceous apically, with a large, yellow basal patch. Hind trochanter yellow, piceous basally on outer side. Hind femur brownish red, darkened at base and apex, with inner side yellowish. Hind tibia and tarsus dark brown to black, the former yellowish at extreme base and on flexor surface from base to near apex.

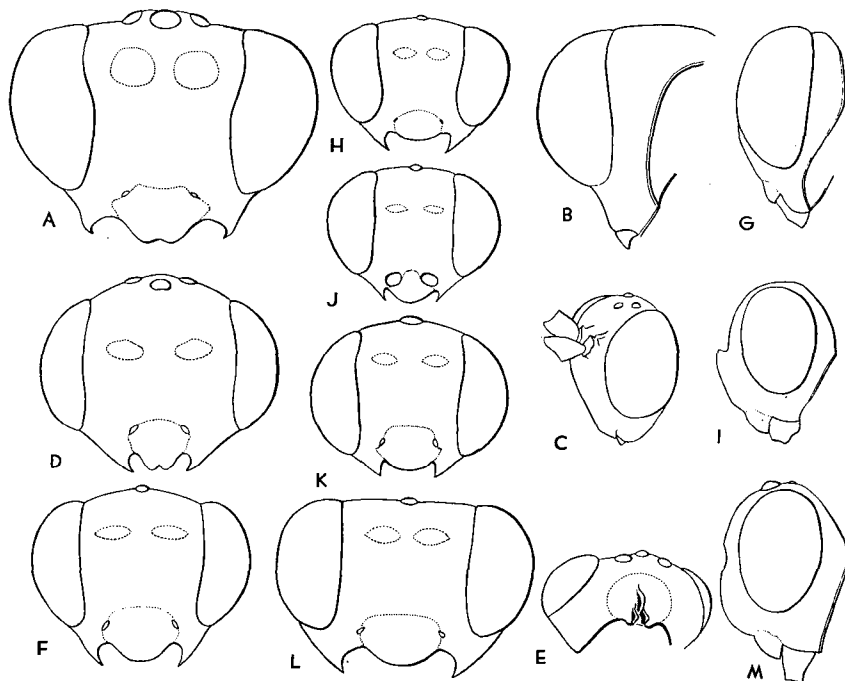


Fig. 1. A-B: *Teleutaea minamikawai*; C: *Teleutaea uchidai*; D-E: *Cephaloglypta laricis*; F-G: *Glypta stenus*; H-I: *Glypta watanabei*; J: *Glypta macrofossa*; K: *Glypta uchidai*; L: *Glypta media*; M: *Glypta breviterebra*. A, D, F, H, J, K, L: head in frontal aspect; B, C, G, I, M: head in lateral aspect; E: head in posterior aspect.

Holotype (♀), Matsuyama, Ehime, 25. v, 1956, S. Ueda leg. Paratypes: 1 ♀, Kanaya, Shizuoka, 15. v, 1957, 1 ♀, Kanaya, Shizuoka, 15. v, 1960, J. Minamikawa leg., bred from *Homona coffearia*; 1 ♀, Tottori, 11. viii, 1932, I. Okada leg.; 1 ♀, Matsuyama, Ehime, 4. ix, 1955, M. Miyatake leg.; 1 ♀, Uwajima, Ehime, 29. vii, 1955, Y. Wake leg.; 1 ♀, Kochi, 5. v, 1952, T. Edashige leg.

Hosts: *Homona coffearia* Nietner.

Distribution: Japan (Honshu; Shikoku).

3. *Teleutaea striata* (Gravenhorst)

Glypta striata Gravenhorst, 1829, Ichn. Eur. 3: 70.

Teleutaea striata: Schmiedeknecht, 1907, Opus. Ichn.: 118; Hellén, 1915, Act. Soc. Faun. Flor. Fennica 40 (6): 53.

Specimens examined: 1 ♀, Gonohe, Aomori, 22. vi, 1960, A. Toshima et al. leg.; 1 ♀, Kamo, Niigata, 23. ix, 1954, Y. Ohmori leg.; 1 ♀, Nagano, T. Koshimizu leg., bred from *Brenthis daphne*; 2 ♀, Europe.

Hosts: *Brenthis daphne* Schiffermüller.

This species is new to Japan.

Distribution: Japan (Honshu) and Europe.

4. *Teleutaea brischkei* (Holmgren)

Glypta brischkei Holmgren, 1860, Svensk. Vet.-Akad. Handl. 3: 37.

Hoplitophrys brischkei: Schmiedeknecht, 1907, Opus. Ichn.: 1183; Uchida, 1928, Jour. Fac. Agr., Hokk. Imp. Univ. 25: 69.

Teleutaea brischkei: Hellén, 1915, Act. Soc. Faun. Flor. Fennica 40 (6): 53.

Hoplitophrys brischkei var. *nigricoxalis* Uchida, 1928, Jour. Fac. Agr., Hokk. Imp. Univ. 25: 69.

This species is variable in the structure of the frons and the antennal socket, and in general coloration, being divided into five forms as in the following key:—

Key to the forms of *brischkei*

1. Pronotum without a yellow band along upper margin. Scutellum and postscutellum without yellow. Mesopleurum without a yellow spot at posterior lower angle. Frons without a triangularly defined median area, usually with a very weak, longitudinal median ridge. Antennal socket strongly prolonged upwardly on upper side. 2.
- Pronotum yellow along upper margin. Scutellum yellow at least laterally. 3.
2. Hind leg brownish black to black, its tibia not marked with yellow at base. In ♀ fore and middle legs usually brown to brownish black. Fore wing 7.5 mm. (Hokkaido; Honshu; Shikoku; Kyushu; mainly from woody localities). Form B.
- Hind leg reddish yellow to yellowish brown, its tibia, except flexor surface and base, and tarsus darkened. Fore and middle legs reddish yellow to yellowish brown. Fore wing 7 mm. (Europe and Saghalien). Form A.
3. Frons with a sharply defined, triangular median area and with a sharp, longitudinal median ridge. Antennal socket very strongly prolonged upwardly on upper side. Postscutellum yellow. ♀: Scutellum yellow except a triangular median basal spot. Hind coxa red, with a large, yellow basal patch. Mesopleurum with a small, yellow spot at posterior lower angle. Fore wing 10.5 mm. (Hokkaido; Honshu; Shikoku). Form C.
- Frons without a triangularly defined median area and without a sharp, longitudinal ridge. Postscutellum not marked with yellow. Scutellum at most laterally yellow. 4.
4. Frons nearly flat, without a longitudinal median ridge. Antennal socket weakly prolonged upwardly on upper side. ♀: Scutellum narrowly yellow on lateral margin of basal half. Mesopleurum without a yellow spot at posterior lower angle. Hind coxa red, without a distinct, yellow basal patch. ♂: Hind coxa yellow. Fore wing 6 mm. (Rebun Is., Hokkaido; Okunikko, Honshu). Form D.
- Frons distinctly concave, with a very weak, longitudinal median ridge. Antennal socket strongly prolonged upwardly on upper side. ♀: Scutellum broadly yellow on lateral margin from base to apex. Mesopleurum with a small, yellow spot at posterior lower angle. Hind coxa red, with a distinct, large, yellow basal patch. ♂: Hind coxa red. Fore wing 7-8 mm. (Hokkaido includ-

ing Rebun Is.; Saghalien). Form E.

Specimens examined: 21 ♀, 4 ♂, Japan and 4 ♀, Saghalien.

Form A. 2 ♀ from Saghalien.

Form B. 1 ♂, Nukabira, Hokkaido, 14. vii, 1959, S. Momoi leg.; 3 ♀, Obako, Wakayama, 2 ♀, Hikosan, Fukuoka, 1 ♀, Omata, Miyasaki, K. Iwata leg.; 1 ♀, Taishakukyo, Hiroshima, 3. v, 1936, K. Egawa leg.; 1 ♀, Matsuyama, Ehime, 10. vii, 1955, S. Ueda leg.

Form C. 1 ♀, Sapporo, Hokkaido, 15. vii, 1955, 2 ♀, Sapporo, Hokkaido, 16. vii, 1955, 1 ♀, Sapporo, Hokkaido, 10. viii, 1955, 2 ♀, Sapporo, Hokkaido, 17. viii, 1959, S. Momoi leg.; 1 ♀, Daisen, Tottori, 1. vii, 1956, T. Oku leg., bred from *Cacoecia capsigelana*; 1 ♀, Omogo, Ehime, 21. viii, 1953, M. Miyatake leg.

Form D. 1 ♂, Rebun, Hokkaido, 29. vii, 1955, K. Hattori leg.; 1 ♂, Rebun, Hokkaido, 1. viii, 1958, S. Takagi leg.; 1 ♀, Rebun, Hokkaido, 1. viii, 1958, K. Kamijo leg.; 1 ♀, Okunikko, Tochigi, 13. ix, 1957, S. Momoi leg.

Form E. 2 ♀ (including type of *nigricoxalis*), Saghalien; 1 ♀, Daisetsu, Hokkaido, S. Matsumura leg.; 1 ♀, Daisetsu, Hokkaido, 22-26. vii, 1957, 1 ♀, Sapporo, Hokkaido, 10. viii, 1955, S. Momoi leg.; 1 ♀, 1 ♂, Rebun, Hokkaido, 26. vii, 1951, M. Konishi leg.

Hosts: *Cacoecia capsigelana* Kennel.

This species is new to Japan.

Distribution: Japan (Hokkaido; Honshu; Shikoku; Kyushu), Saghalien and Europe.

5. *Teleutaeta uchidai*, sp. nov. (Fig. 1, C)

Frons concave, with a small, strongly compressed lateral projection near exterior side of prolonged portion of antennal socket. Epomia sharp, subtubercled at upper end. Mesoscutum with fine and dense punctures. Pronotum, mesopleurum, metapleurum and propodeum with coarse and dense but separated punctures. Subapical transverse carina of propodeum complete, strong almost uniformly. Tergite 1 with strong and dense punctures. Tergites 2 and 3 with ill-defined and very dense punctures. Tergites 4 and 5 with sculpture much weaker successively than the preceding tergites, sometimes coriaceous partly rather than punctate. Tergite 1 about 1.5 as long as wide in ♀, about 1.7 as long as wide in ♂, its lateral keels complete from base to near apex. Tergite 2 about 1.2 as long as wide in ♀, about 1.4 as long as wide, its oblique impressions moderately deep. Tergite 3 similar to tergite 2 in structure but its oblique impressions weaker. Tergite 4 slightly longer than wide, its oblique impressions nearly obsolete. Tergite 5 with no oblique impressions. Fore wing 8-10 mm.

Black. Palpi pale brown. Mandible except teeth, clypeus except extreme base, pronotal collar, pronotum at humeral angle and at lower angle, propleurum apically, a small spot just above upper end of epomia, scutellum on lateral side, subtegular ridge, mesoepimeron at upper end, and tergites 4 to 7 at apex, yellow. Greater part of mesoepimeron and posterior lower angle of mesopleurum tinged with red. Antenna dark brown to black, with pedicel yellow at apex in ♀, with scape and pedicel yellow ventrally in ♂, the flagellum sometimes reddish brown. Fore and middle legs yellowish brown in ♀, stramineous in ♂, with coxae exteriorly pale. Middle tarsus weakly fuscous. Hind leg reddish brown in ♀,

slightly lighter in ♂. Hind coxa with a large, yellow basal patch. Hind trochanter and femur dark brown on outer side. Hind tibia and tarsus black, the former yellow at base and on flexor surface.

Holotype (♀), Sasayama, Hyogo, 11. x, 1952, K. Iwata leg. Paratypes: 1 ♂, Wakkanai, Hokkaido, 31. vii, 1958, 1 ♀, 1 ♂, Kabutonuma, Hokkaido, 1. viii, 1958, 1 ♀, Kamuikotan, Hokkaido, 2. viii, 1958, 1 ♀, Apoi, Hokkaido, 22. viii, 1957, 1 ♀, Daisetsu, Hokkaido, 22-26. vii, 1957, 1 ♂, Sapporo, Hokkaido, 16. vii, 1955, 1 ♀, Sapporo, Hokkaido, 10. viii, 1955, 1 ♂, Sapporo, Hokkaido, 8. vii, 1956, 1 ♀, Sapporo, Hokkaido, 31. vii, 1957, 1 ♀, Sapporo, Hokkaido, 13. vii, 1958, 1 ♀, Sapporo, Hokkaido, 26. vii, 1958, 1 ♀, Sapporo, Hokkaido, 10. viii, 1958, 1 ♀, Sapporo, Hokkaido, 10. ix, 1958, 1 ♀, Sapporo, Hokkaido, 10. ix, 1959, S. Momoi leg.; 1 ♀, Jozankei, Hokkaido, 22. ix, 1957, T. Kumata leg.; 1 ♀, Aibetsu, Hokkaido, 16. vii, 1955, T. Uchida leg.; 1 ♂, Kamikochi, Nagano, 30. vii, 1953, S. Takagi leg.; 1 ♀, Hyogo, K. Iwata leg.; 1 ♀, Wakayama, viii, 1914, S. Issiki leg.; 1 ♀, Minô, Osaka, 1. vii, 1929, C. Teranishi leg.; 1 ♂, Tokambo, Saghalien, 28. vii, 1934, C. Watanabe & T. Inoue leg.; 1 ♂, Kaibato, Saghalien, 14. viii, 1928, K. Tamanuki leg.

This species is easily distinguishable from *brischkei* as well as any other congeneric species by the presence of the lateral projection of the frons. It is possible that the present species may be identical with *Hoplitophrys brischkei* var. *japonica* Uchida (1928).

Distribution: Japan (Hokkaido; Honshu) and Saghalien.

Genus *Cephaloglypta* Obrtel

Cephaloglypta Obrtel, 1956, Zool. Listy 19: 139. [Type-species: *Cephaloglypta excavata* Obrtel = *Glypta murinanae* Bauer].

This genus is represented by the type-species from Europe and the following species from Japan.

1. *Cephaloglypta laricis*, sp. nov. (Fig. 1, D-E)

Frons with fine and dense punctures, with fine striae medially just above antennal sockets, the antennal scrobe polished at bottom. Face strongly coriaceous, with fine and indistinct punctures. Clypeus distinctly coriaceous and punctate basally, feebly coriaceous and virtually impunctate apically. Malar space about 1.5 as long as width of mandible. Lateral teeth of occipital concavity much weak and small than median tooth, with a sub-conical median elevation. Occipital carina evanescent apically. Pronotum and mesoscutum with fine and dense punctures, distinctly coriaceous in ♀, feebly coriaceous in ♂. Mesopleurum and metapleurum a little more coarsely punctate than pronotum, with interspaces between punctures weakly coriaceous in ♀, virtually polished in ♂. Propodeum with coarse and dense punctures, its posterior declivity strong in ♀ and weak in ♂, its petiolar area indistinctly depressed and sometimes bordered anteriorly by a very obtuse, incomplete carina, and its median area indicated as a broad, polished sulcus extending from base of propodeum to petiolar area. Scutellum margined laterally at base. Tergite 1 about 0.9 as long as wide in ♀, about as long as wide in ♂, with coarse and dense punctures. Tergite 2 about 0.6 as long as wide in ♀, about 0.7 as long as wide in ♂, with very dense punctures,

a pair of oblique impressions and an indistinct (♀) or distinct (♂) transverse subapical impression. Tergite 3 similar to tergite 2 in structure but its oblique impressions and transverse subapical impression much weaker. Tergite 4 a little more finely and sparsely punctate than the preceding tergites, with no diagnostic transverse impression. Sheath about 0.6 as long as fore wing. Fore wing 6.5 mm.

♀. Black to piceous black. Palpi yellow to white. Mandible except teeth, malar space along mandibular base, propleurum at apical margin, pronotal collar, pronotum along upper margin and at lower angle, tegula, and a small spot of subtegular ridge, yellow. Clypeus with apical half reddish. Propleurum extensively, pronotum at lower angle, subtegular ridge, mesopleurum at anterior and posterior margins, mesoepimeron, scutellum, postscutellum, alar scrobe, propodeum apically, metapleurum extensively, tergites 1 to 4 extensively, tergites beyond 4 at apex, and subgenital plate at apex, tinged with red. Antenna reddish brown, with ventral side lighter and becoming yellow towards base. Legs reddish brown to red. Trochanters with apical segment extensively and apical half of basal segment yellow. Tarsi brownish yellow, their segments darkened at apex. Fore and middle coxae somewhat lighter dorso-externally. Fore femur yellowish at apex. Fore and middle tibiae yellow at base, with a yellowish stripe on exterior side. Hind femur with piceous suffusion of variable extent. Hind tibia dark brown to blackish, yellow at base, with a yellowish to reddish longitudinal stripe on flexor surface extending from base to near apex.

♂. Black. Palpi white. Mandible except teeth, clypeus, face, cheek, pronotal collar, pronotum along upper margin and at lower angle, propleurum at apical margin, and tegula, yellow. Face and clypeus with a blackish spot of variable extent. Mesoepimeron in part, alar scrobe, and tergites at apex tinged with red. Antenna brownish yellow, paler basally, with scape fuscous dorsally. Legs brownish yellow. Fore and middle coxae yellow with piceous suffusion. Hind coxa black, with apex yellow. All trochanters yellow. Hind tibia yellowish brown to blackish, yellow at base and on a longitudinal line of flexor surface. Fore tarsus brownish yellow. Middle and hind tarsi brownish yellow, their segments darkened at apex.

Holotype (♀), Sapporo, Hokkaido, 16. vii, 1955, S. Takagi leg. Paratypes: 1 ♂, Kabutonuma, Hokkaido, 1. viii, 1958, 1 ♀, Daisetsu, Hokkaido, 22-26. vii, 1957, 1 ♂, Sapporo, Hokkaido, 16. vii, 1955, S. Momoi leg.; 2 ♂, Yamabe, Hokkaido, 4. vii, 1959, 3 ♂, Yamabe, Hokkaido, 29. vi, 1959, C. Nishiguchi leg., bred from *Ptycholomoides aeriferana*.

Hosts: *Ptycholomoides aeriferana* Herrich-Schäffer.

This species is very similar to *C. murinanae* (Bauer), differing therefrom by the shape of the characteristic teeth in the occipital concavity, the lacking of the distinct carina of the propodeum, the more strongly transverse tergites 2 and 3, and the weaker impressions of the median tergites. It differs from the latter also in the color of the legs.

Distribution: Japan (Hokkaido).

Genus *Glypta* Gravenhorst

Glypta Gravenhorst, 1829, Ichn. Eur. 3: 3. [Type-species: *Glypta sculpturata* Gravenhorst].

Conoblasta Förster, 1868, Verh. Naturh. Ver. Preuss. Rheinlande 25: 165. [Type-species: *Pimpla*

ceratites Gravenhorst].

Diblastomorpha Förster, 1868, Verh. Naturh. Ver. Preuss. Rheinlande 25: 165. [Type-species: *Glypta bicornis* Boie].

Hemiephialtes Ashmead, 1906, Proc. U. S. Nat. Mus. 30: 177. [Type-species: *Hemiephialtes glypta* Ashmead].

Zaglyptomorpha Viereck, 1913, Proc. U. S. Nat. Mus. 46: 358. [Type-species: *Zaglyptomorpha attenuata* Viereck].

Apophua Morley, 1913, Fauna of British India, Hymenoptera 3 (1): 213. [Type-species: *Apophua carinata* Morley].

Foveoglypta Hellén, 1915, Act. Soc. Faun. Fennica 40 (6): 57. [Type-species: *Glypta* (*Foveoglypta*) *monstrosa* Hellén].

This is a large genus of almost world-wide in distribution. There are three species-groups in Japan which can be defined rather clearly. It seems possible to treat the three as different genera, but I am disinclined to do so at this time, since further examinations on much abundant material are necessary in order to have a definite conclusion.

Key to the groups

1. Tibial spur of fore leg very long, distinctly longer than half of the tarsal segment 1. Occipital carina strongly sinuate on level of lower end of eye. Epomia long, extending near upper margin of pronotum. Areolet absent. Group A.
- Tibial spur of fore leg short, shorter than half of the tarsal segment 1. Occipital carina less strongly sinuate on level of lower end of eye. 2.
2. Areolet present, but the second intercubitus sometimes vestigial. Epomia long, extending near upper margin of pronotum (at least well above lateral scrobe of pronotum). Occipital carina most often incomplete apically. Frons without rugulae between antennal sockets. . . Group B.
- Areolet absent. Epomia short, not or hardly extending above lateral scrobe of pronotum. Occipital carina complete apically. Frons with a pair of short longitudinal rugulae between antennal sockets. Group C.

Group A

Occipital carina strongly sinuate on level of lower end of eye, complete apically. Frons with a pair of short longitudinal rugulae between antennal sockets. Tibial spur of fore leg long, distinctly longer than half of the tarsal segment 1. Epomia sharp and long, extending near upper margin of pronotum. Areolet absent.

There are five species referable to this group in Japan. *Apophua carinata* Morley, the type-species of *Apophua*, may belong to this group.

Key to the species

1. Tergites impunctate and shining. Tergite 2 longer than wide. *sapporensis* Uchida.
- Tergites heavily punctate and mat. Tergite 2 at most about as long as wide. 2.
2. Prepectal carina not extending onto mesopleurum. Propodeum with petiolar area alone. Tergite 1 with its dorsal keels short, not extending beyond spiracles. *aquilonia*, sp. nov.
- Prepectal carina extending onto mesopleurum. Propodeum with usual areas. Tergite 1 with its dorsal keels long, extending to apical third of the tergite. 3.
3. Pronotum broadly yellow along upper margin. Subtegular ridge yellow. Tergite 1 at most about 1.2 as long as wide, with a short, longitudinal median keel at apex. Tergites 2 and 3

with a sharp, longitudinal median keel extending sometimes from base to near apex of the tergite. *bipunctoria* (Thunberg).

- Pronotum without a yellow marking along its upper margin. Subtegular ridge black. Tergite 1 about 1.5 as long as wide, without a short, longitudinal median keel at apex. Tergites 2 and 3 without a longitudinal median keel. *stenus*, sp. nov.

1. *Glypta aquilonia*, sp. nov.

♀. Frons with strong and dense punctures except a small smooth area just above each antennal socket. Face more finely punctate than frons. Clypeus punctate basally. Malar space about 0.9 as long as width of mandible. Occipital carina interrupted at middle. Pronotum, mesoscutum, scutellum, metapleurum and propodeum with coarse and dense punctures, those on mesoscutum and propodeum densest, separated one another by less than their diameter. Mesopleurum with punctures finer than those on metapleurum. Pronotum smooth below its lateral scrobe. Prepectal carina meeting lateral margin of middle coxal scrobe and not extending onto mesopleurum. Propodeum with a transverse subapical carina alone. Tergites 1 to 4 with strong and very dense punctures, those on tergites 2, 3 and 4 tending to be confluent. Tergite 1 evenly convex in cross section, with a short, longitudinal median keel at apex, its dorsal keels short, not extending to spiracles. Tergite 2 slightly shorter than wide, with a longitudinal median keel extending to base of tergite 4 through tergite 3. Sheath about 0.8 as long as fore wing. Fore wing 9 mm.

Black. Palpi, clypeus, mandible except teeth, humeral and lower angles of pronotum, and tegula, yellow. Antenna dark brown to black. Fore and middle legs reddish yellow. Hind leg red. Fore and middle coxae and trochanters and hind trochanter yellow. Hind coxa extensively piceous. Hind trochanter infuscated apically. Hind femur darkened basally and apically. Hind tibia infuscated especially apically. Hind tarsus dark brown to black.

Holotype (♀), Sapporo, Hokkaido, 15. vii, 1955, S. Takagi leg.

Distribution: Japan (Hokkaido).

2. *Glypta stenus*, sp. nov. (Fig. 1, F-G)

Frons with strong and dense punctures tending to be transversely confluent, with a small smooth area just above each antennal socket. Face with punctures a little finer than those on frons, those on median tumidity mixed with transverse striae and those on lateral portion well separated. Clypeus with numerous, rather fine and separated punctures on basal half. Occipital carina interrupted narrowly at middle. Malar space about 0.9 as long as width of mandible in ♀, about 0.7 as long as width of mandible in ♂. Pronotum with strong separated punctures above its lateral scrobe, polished below the scrobe, the scrobe weakly costate. Mesoscutum with coarse and separated punctures, those on position of notaulus tending to be confluent. Mesopleurum with punctures finer than those on dorsal portion of thorax, separated one another by about twice their diameter. Metapleurum with punctures a little coarser than those on mesopleurum in ♀, similar to those on mesopleurum in ♂. Propodeum with coarse and dense punctures except petiolar area which is rugose longitudinally. Scutellum with a short, longitudinal lateral carina at base. Prepectal carina extending onto mesopleurum. Areola not separated from basal area, incomplete behind

costulae. Tergites 1 to 4 with weak and ill-defined punctures mixed with longitudinal striae in greater part of median portion of each tergite in ♀, much strongly and subrugosely punctate in ♂. Tergite 1 about 1.5 as long as wide, its dorsal keels extending to near apex. Tergites 2 and 3 about as long as wide, their oblique impressions sharp, nearly met at base, with no median keel in ♀, with a short, longitudinal median keel at base of tergite 2 in ♂. Tergite 4 transverse in ♀, about as long as wide in ♂, its oblique impressions distant at base. Sheath about 0.7 as long as fore wing. Fore wing 6–6.5 mm.

Black. Palpi, apical half of clypeus in ♀, clypeus wholly in ♂, mandible, cheek along mandibular base in ♂, humeral angle of pronotum, tegula, apex of scutellum, and post-scutellum in ♂, yellow. Antenna reddish brown, darkened basally, with pedicel yellow at apex in ♀, with scape and pedicel yellow ventrally in ♂. Fore and middle legs reddish yellow in ♀, yellow in ♂, with coxae and trochanters pale. Hind leg red to reddish yellow. Hind trochanter yellow in ♂. Hind femur infuscated at apex. Hind tibia weakly darkened subbasally, distinctly darkened apically, often with an infuscated line on outer side in ♂. Hind tarsus dark brown.

Holotype (♀), Kushiro, Hokkaido, 19. ix, 1929, Yamanaka leg. Paratypes: 1 ♀, Urakawa, Hokkaido, S. Matsumura leg.; 1 ♀, Ohtani, Saghalien, 22. viii, 1914, J. Adachi & S. Issiki leg.; 3 ♂, Tarandomari, Saghalien, 25–26. vii, 1934, 1 ♂, Kaibato, Saghalien, 30. vii–2. viii, 1934, C. Watanabe & T. Inoue leg.; 2 ♂, Saghalien, S. Matsumura leg.

Distribution: Japan (Hokkaido) and Saghalien.

3. *Glypta bipunctoria* (Thunberg)

Ichneumon bipunctorius Thunberg, 1822, Men. Akad. Sc. St. Petersburg 8: 28; Thunberg, 1824, Mem. Akad. Sc. St. Petersburg 9: 367.

Glypta flavolineata Gravenhorst, 1829, Ichn. Eur. 3: 27; Thomson, 1889, Opus. Ent. 8: 1332; Schmiedeknecht, Opus. Ichn.: 1192.

Glypta bipunctorius: Roman, 1912, Zool. Beitr. 1: 280.

Glypta bipunctoria: Habermehl, 1917, Zeit. Wiss. Ins.-Biol. 7–8: 168; Uchida, 1928, Jour. Fac. Agr., Hokk. Imp. Univ. 25: 75.

Glypta bipunctoria var. *tobensis* Uchida, 1928, Jour. Fac. Agr., Hokk. Imp. Univ. 25: 75.

Apophua flavolineata: Cushman, 1933, Ins. Mats. 8: 20.

Apophua bipunctoria: Uchida, 1940, Ins. Mats. 16: 118.

Specimens examined: 1 ♀, Wakkanai, Hokkaido, 31. vii, 1958, 2 ♂, Kabutonuma, Hokkaido, 1. viii, 1958, 1 ♀, Moshiri, Hokkaido, 29. vii, 1958, S. Momoi leg.; 1 ♀, Jozankei, Hokkaido, 2. ix, 1924, T. Uchida leg.; 1 ♀, Sapporo, Hokkaido, 24. vii, 1927, S. Matsumura leg.; 1 ♀ (type of *tobensis*), Toba, Mie, M. Yanagihara leg.; 1 ♀, Sasayama, Hyogo, 20. vi, 1954, 1 ♀, Omata, Miyasaki, 14. vii, 1954, K. Iwata leg.; 26 ♀, 4 ♂, Kaigen, China, I. Okada leg.

Distribution: Japan (Hokkaido; Honshu; Kyushu), China and Europe.

4. *Glypta sapporensis* Uchida

Glypta sapporensis Uchida, 1928, Jour. Fac. Agr., Hokk. Imp. Univ. 25: 74.

Specimens examined: 1 ♀ (lectotype of *sapporensis*, by present designation), Sapporo, Hokkaido, 13. vii, 1925, 1 ♀, Sapporo, Hokkaido, 3. vii, 1925, T. Uchida leg.; 1 ♀, Sapporo,

Hokkaido, 7. vii, 1955, 1 ♀, Sapporo, Hokkaido, 10. vii, 1957, 2 ♀, Sapporo, Hokkaido, 15. vii, 1955, 2 ♀, 1 ♂, Sapporo, Hokkaido, 16. vii, 1955, 1 ♀, Sapporo, Hokkaido, 26. vii, 1958, bred from *Pandemis heparana*, 1 ♂, Sapporo, Hokkaido, 16. viii, 1955, 1 ♀, Sapporo, Hokkaido, 25. ix. 1955, 1 ♂, Kabutonuma, Hokkaido, 1. viii, 1958, S. Momoi leg.; 1 ♀, 1 ♂, Sapporo, Hokkaido, 15. vii, 1955, S. Takagi leg.; 1 ♀, Ashiu, Kyoto, 19. vii, 1958, K. Iwata leg.

Hosts: *Pandemis heparana* Hübner.

Distribution: Japan (Hokkaido; Honshu).

Species not included in the key

5. *Glypta rufa* Uchida

Glypta rufa Uchida, 1928, Jour. Fac. Agr., Hokk. Imp. Univ. 25: 72.

This species was originally described from three males collected at Garugawa, Hokkaido. In the collection of the Entomological Institute, Hokkaido University, there is a single male (lectotype of *rufa*, by present designation) with labels "Garugawa, Hokkaido, 24. vi, 1923, T. Uchida", "*Glypta rufa* sp. nov." and "Type". This species belongs to the present group and is very similar to *G. bipunctoria* (Thunberg), differing therefrom merely by the finer sculpture and the absence of the median keel of the basal tergites. It also differs from *G. stenus*, sp. nov., by the finer and sparser punctures on the basal tergites, the broader tergites and the lacking of the baso-lateral carina of the scutellum. As the type-specimen is in very bad condition, however, further examinations of many other specimens are necessary in order to come to a definite conclusion.

Group B

Occipital carina hardly sinuate on level of lower end of eye, most frequently obsolescent apically. Frons without rugulae between antennal sockets. Tibial spur of fore leg short, shorter than half of the tarsal segment 1. Epomia sharp and long, extending well above lateral scrobe of pronotum. Areolet present, its second intercubitus at least vestigial.

This group includes the following four species occurring in Japan.

Key to the species

1. Frons extensively punctate. Clypeus long-oval in outline, distinctly shorter than interfoveal space. Scutellum and humeral margin of pronotum not marked with yellow. Occipital carina complete apically. *watanabei*, sp. nov.
- Frons polished. Clypeus not oval in outline, at least as long as interfoveal space. Scutellum or humeral angle of pronotum marked with yellow. Occipital carina incomplete apically. 2.
2. Clypeal fovea very large, its diameter nearly as long as interfoveal space. *macrofossa*, sp. nov.
- Clypeal fovea of normal form, its diameter much shorter than interfoveal space. 3.
3. Mesoscutum coarsely punctate, the punctures similar to those on metapleurum. Scape and pedicel extensively yellow. ♀: Metapleurum in greater part and propodeum beyond its subapical transverse carina yellow. Tergites 1 to 4 with a broad yellow band at apex. *uchidai*, sp. nov.
- Mesoscutum finely punctate, the punctures finer than those on metapleurum. Scape and pedicel

wholly black. ♀: Metapleurum and propodeum without yellow. Tergites 1 to 3 without a yellow band. Tergite 4 with a narrow yellow band at apex. *iwatai*, sp. nov.

6. *Glypta watanabei*, sp. nov. (Fig. 1, H-I)

Frons with fine and dense punctures except for a small polished area just above antennal socket. Face with fine and dense punctures, its median tumidity much sparsely punctate than other portions. Clypeus long-oval in outline, strongly convex, distinctly shorter than interfoveal space. Malar space about 0.8 as long as width of mandible. Occipital carina complete, weak at middle, meeting hypostomal carina a little behind base of mandible. Pronotum, mesoscutum, mesopleurum, metapleurum and propodeum with rather coarse and dense but separated punctures. Pronotum polished below its lateral scrobe, with a distinct impunctate area above the scrobe. Speculum large, extending to posterior lower angle of mesopleurum, without punctures. Epomia barely extending above lateral scrobe of pronotum, not tubercled at upper end. Propodeum sharply areolated. Areola confluent with second lateral area behind costulae. Basal area separated from areola, long and narrow, weakly broadened basally. Tergites 1 to 4 with weak, ill-defined punctures confluent longitudinally in rows of striae, each tergite with apex broadly unsculptured at middle. Tergite 1 about 1.5 as long as wide in ♀, about 2.0 as long as wide in ♂, its dorsal keels extending to near apex. Tergites 2 and 3 about as long as wide in ♀, about 1.2 as long as wide in ♂, their oblique impressions forming a sharp angle at base, their median lobe sharply carinate at base. Second intercubitus often vestigial. Sheath about 0.7 as long as fore wing. Fore wing 4.5-5 mm.

Black. Palpi, mandible except teeth, clypeus, propleurum, pronotum along lower margin in ♂, tergites 2 and 3 at apex, and subgenital plate in ♀, yellow to reddish yellow. Pronotum at humeral and lower angles, tergite 1 at apex, and tergite 4 and its following tergites at apex, tinged with red. Antenna dark brown, lighter towards base especially in ♂, its scape and pedicel yellow, with a dark brown line on outer side. Legs brownish yellow in ♀, stramineous in ♂, with hind leg darker and fore and middle coxae and trochanters lighter. Hind trochanter infuscated. Hind femur darkened apically and basally. Hind tibia brownish yellow in ♀, yellow in ♂, broadly dark brown at apex. Hind tarsus reddish brown in ♀, yellow in ♂, its segment 5 dark brown. Wing weakly infuscated.

Holotype (♀), Rishiri, Hokkaido, 5. viii, 1958, K. Kamijo leg. Paratypes: 1 ♀, Rishiri, Hokkaido, 3. viii, 1958, K. Kamijo leg.; 1 ♂, Rishiri, Hokkaido, 3. viii, 1958, S. Takagi leg.; 1 ♂, Daisetsu, Hokkaido, 22-26. vii, 1957, 1 ♀, Sapporo, Hokkaido, 8. viii, 1956, 1 ♀, Sapporo, Hokkaido, 26. vii, 1958, 1 ♂, Sapporo, Hokkaido, 10. vii, 1957, S. Momoi leg.

It should be noted here that in this species the second intercubitus is often missing, the epomia shorter than that in any other species of the group, and the occipital carina complete apically.

Distribution: Japan (Hokkaido).

7. *Glypta macrofossa*, sp. nov. (Fig. 1, J)

Frons polished. Face with fine punctures, those on lateral portion of the median tumidity crowded and tending to be confluent. Occipital carina incomplete apically. Clypeus

distinctly convex in lateral aspect, \square -shaped. Clypeal fovea very large, nearly as long as interfoveal space. Face with a distinct median tumidity and a distinct lateral convexity above each clypeal fovea. Cheek weakly impressed along hypostomal carina. Malar space about as long as width of mandible. Pronotum, mesoscutum, scutellum, metapleurum and propodeum with rather coarse, dense and separated punctures. Mesopleurum with punctures distinctly finer on ventral portion. Propodeum with a transverse subapical carina, the other carinae obsolete. Epomia long, extending well above lateral scrobe of pronotum, subtuberculed at upper end. Tergites 2 and 3 with weak and dense punctures, those on lateral lobe stronger and tending to be confluent, and those on median lobe and apical portion weaker and becoming longitudinal striae. Tergite 4 with punctures weak and rather separated. Tergite 1 about 1.5 as long as wide, its dorsal keels extending from base to near apex and sharply converging from middle to apex. Tergite 2 about as long as wide, with a short, longitudinal median keel at base as on tergites 3 and 4. Second intercubitus sometimes strongly reduced and vestigial. Sheath about 0.7 as long as fore wing. Fore wing 4.5–5 mm.

Black. Palpi, mandible except teeth, clypeus, propleurum at apex, pronotum at a distinct small patch above upper end of epomia, at lower and humeral angles, and sometimes along upper margin, tegula, scutellum at apex, subtegular ridge medially, postscutellum extensively, tergites 2 to 7 at apex, and subgenital plate in ♀ apically, yellow. Tergite 1 tinged with red at apex. Antenna dark brown, lighter basally, its scape and pedicel yellow, with outer side dark brown. Fore and middle legs brownish yellow in ♀, yellow in ♂. Hind leg brownish red. Fore and middle coxae and trochanters yellow. Hind coxa yellowish basally, darkened apically. Hind trochanter darkened apically on outer side. Hind femur infuscated at apex, with a small piceous suffusion at base on outer side. Hind tibia weakly yellowish, darkened subbasally and apically, and on outer side. Hind tarsus dark brown to black, the segments 1 to 3 yellow at extreme base.

Holotype (♀) and paratype, 1 ♂, Sapporo, Hokkaido, 16. vii, 1955, S. Momoi leg. Paratypes: 1 ♀, 1 ♂, Hikosan, Fukuoka, 26. v, 1956, 1 ♀, Izu-ōshima, 25. v, 1955, S. Momoi leg.; 1 ♀, Ishizuchi, Ehime, 29. vii, 1955, S. Ueda leg.; 1 ♀, Izu-ōshima, 25. v, 1955, S. Takagi leg.

Distribution: Japan (Hokkaido; Shikoku; Kyushu; Izu Is.)

8. *Glypta uchidai*, sp. nov. (Fig. 1, K)

Frons polished. Face finely punctate laterally, more coarsely punctate medially, the punctures on lateral portion of the median tumidity crowded. Occipital carina broadly obsolete at middle, erased apically. Clypeus of usual form, weakly convex in lateral aspect, about 0.8 as long as interfoveal space. Malar space about 0.8 as long as width of mandible in ♀, about 0.5 as long as width of mandible in ♂. Pronotum, mesoscutum, scutellum, metapleurum and propodeum with strong, dense but separated punctures. Mesopleurum slightly (♀) or distinctly (♂) more coarsely punctate than the other portions of thorax. Pronotum polished below its lateral scrobe. Propodeum with a subapical transverse carina and costulae, the other carinae obsolete in ♀, with usual areas defined in ♂. Areola con-

fluent with basal area and almost quadrate behind costulae in ♂. Tergites 1 to 4 with strong and very dense punctures tending to be confluent. Tergite 1 about 1.2 as long as wide, its dorsal keels extending beyond spiracles in ♀, often incomplete but extending to near apex in ♂. Tergite 2 about 0.8 as long as wide in ♀, about as long as wide in ♂. Tergites 2 to 4 with a short, longitudinal median keel at base. Second intercubitus present, but sometimes somewhat reduced. Sheath about 0.5 as long as fore wing. Fore wing 5.5–6 mm.

Black. Yellow are: palpi, mandible except teeth, clypeus, pronotum broadly along upper margin and narrowly along lower margin, propleurum extensively, tegula, subtegular ridge, scutellum, postscutellum, a small spot on posterior lower angle of mesopleurum, and dorsal portion of mesoepimeron. In ♀ also following parts yellow: metapleurum in greater part, propodeum laterally before its basal constriction and at apex behind its transverse subapical carina, tergites 1 to 4 broadly at apex, tergites beyond 4 narrowly at apex, and subgenital plate. Antenna blackish in ♀, reddish brown in ♂, the scape and pedicel yellow and with a brown line on outer side. Fore and middle legs brownish yellow, with coxae and trochanters yellow. Hind leg reddish brown in ♀, brownish yellow in ♂. Hind coxa weakly infuscated at apex, more or less yellowish at base. Hind trochanter yellow, with apical segment infuscated. Hind femur infuscated at base and at apex in ♀. Hind tibia darty yellow, yellow at extreme base, infuscated subbasally and apically, these fuscous areas connected with indistinct fuscous suffusion on outer side. Hind tarsus dark brown.

Holotype (♀) and paratypes, 4 ♀, 1 ♂, Sapporo, Hokkaido, 16. vii, 1955, S. Momoi leg. Paratypes: 2 ♂, Sapporo, Hokkaido, 7. vii, 1955, 1 ♂, Sapporo, Hokkaido, 15. vii, 1955, 1 ♀, Sapporo, Hokkaido, 10. viii, 1955, 1 ♂, Sapporo, Hokkaido, 17. viii, 1959, S. Momoi leg.; 2 ♀, Sapporo, Hokkaido, 16. vii, 1955, S. Takagi leg.

Distribution: Japan (Hokkaido).

9. *Glypta iwatai*, sp. nov.

Pronotum, mesoscutum in greater part, and mesopleurum with punctures finer than those on metapleurum, propodeum and tergites 1 to 4. Propodeum with a subapical transverse carina and distinct costulae, the basal area opened backwards. Tergite 1 about 1.5 as long as wide, its dorsal keels complete to near apex. Tergite 2 about as long as wide in ♀, slightly longer than wide in ♂. Tergites 2 and 3 longitudinally striate-punctate. Sheath about 0.8 as long as fore wing. Fore wing 5.5 mm. Otherwise very similar to *uchidai* in structure.

Black. Yellow are: palpi, mandible except teeth, clypeus, pronotum along upper margin and lower margin (often with an interruption before epomia), tegula, subtegular ridge, scutellum, postscutellum, mesoepimeron dorsally, a small spot on posterior lower angle of mesopleurum and on metapleurum, tergites 4 to 7 at apex, and subgenital plate in ♀. Tergites 2 and 3 tinged with red at apex. Antenna black or somewhat brownish. Legs similar to *uchidai* in color.

Holotype (♀), Okunikko, Tochigi, 13. ix, 1957, S. Momoi leg. Paratypes: 1 ♂, Rishiri, Hokkaido, 4. viii, 1958. K. Kamiyo leg.; 1 ♀, Nukabira, Hokkaido, 12. vii, 1959, S. Momoi leg.

Distribution: Japan (Hokkaido; Honshu).

Group C

Occipital carina hardly sinuate on level of lower end of eye, complete apically. Frons with a pair of short rugulae between antennal sockets. Tibial spur of fore leg short, shorter than half of the tarsal segment 1. Epomia short, often vestigial. Areolet absent.

There are eight species referable to this group in Japan. *Glypta sculpturata* Gravenhorst, the type-species of *Glypta*, *Pimpla ceratites* Gravenhorst, the type-species of *Conoblasta*, and *Glypta bicornis* Boie, the type-species of *Diblastomorpha*, may belong to this group.

Key to the species

1. Frons unsculptured medially, with a median horn, and one or two short, transverse lateral carinae above each antennal socket. 2.
- Frons densely sculptured almost all over, without a median horn and a transverse carina above antennal socket. 3.
2. Malar space about 1.7 as long as width of mandible. Pronotum without a yellow or red spot at humeral angle. Coxae black. Intercubitus about as long as abscissa 2 of cubitus. *parva*, sp. nov.
- Malar space about as long as width of mandible. Pronotum with a yellow spot at humeral angle. Coxae red and yellow. Intercubitus distinctly shorter than abscissa 2 of cubitus. *cymolomiae* Uchida.
3. Occipital carina bisinuate apically. Clypeus wholly covered with very dense punctures and conspicuous hairs, black in ♀, yellow in ♂. *bisinuata*, sp. nov.
- Occipital carina unisinuate apically. Clypeus distinctly punctate on basal half alone, not wholly black. 4.
4. Tergites 2 to 4 in ♀, and 2 to 5 in ♂, with a sharp, transverse impression. *triangularis*, sp. nov.
- Tergites 2 to 5 without such a transverse impression. 5.
5. Clypeus yellow all over. Subtegular ridge yellow. Tergite 1 with lateral keels incomplete behind spiracles. 6.
- Clypeus at most with apical half brown or yellow. Subtegular ridge black. Tergite 1 with lateral keels complete. 7.
6. Frons with a distinct, small polished area just above each antennal socket. Flagellum with normally dense hairs. Sheath about 0.4 as long as fore wing. *breviterebra*, sp. nov.
- Frons without a distinct, polished area just above each antennal socket. Flagellum with unusually sparse hairs. Sheath about 0.8 as long as fore wing. *media*, sp. nov.
7. Scutellum black, without yellow markings, the lateral carina extending to near middle. Hind tibia and tarsus except their base dark brown to black. Sheath about 1.7 as long as fore wing. *glypta* (Ashmead).
- Scutellum yellow or red, the lateral carina absent. Hind tibia yellow, infuscated apically and subbasally. Hind tarsus dark brown, with basal half of the segments 1 to 3 or even to 4 yellow. Sheath about 0.9 as long as fore wing. *maruyamensis* Uchida.

10. *Glypta bisinuata*, sp. nov.

Face very finely punctate laterally, much coarsely and densely punctate medially, the punctures on the median tumidity strongly crowded. Frons with strong and dense punctures except a small smooth area just below median ocellus and just above each antennal socket. Clypeus very densely punctate basally, sparsely punctate apically, covered with conspicuous hairs all over, barely separated from face, about as long as interfoveal space, divided weakly into basal and apical sections by a very shallow impression, the basal section weakly convex and the apical section strongly convex. Malar space about 1.5 as long as width of mandible. Occipital carina narrowly interrupted at middle, bisinuate apically, being provided with a weak, but rather distinct upper sinuation and a faint lower one. Pronotum, mesoscutum, mesopleurum, metapleurum and propodeum with strong and dense punctures, the punctures on pronotum and mesoscutum finer and those on propodeum sparser. Epomia sharp, extending to upper margin of lateral scrobe of pronotum, subtubercled at upper end. Notauli distinct, extending to tegulae. Propodeum with areas defined normally. Basal area slightly longer than wide, weakly narrowed backwards. Areola hexagonal, often incomplete behind costulae. Intercubitus distinctly longer than abscissa 2 of cubitus. Tergites 1 to 4 with strong and dense but separated punctures. Tergite 1 about 1.1 to 1.2 as long as wide, its dorsal keels extending to near middle. Tergite 2 about 0.8 as long as wide, its oblique impressions distant at base. Sheath about 0.8 as long as fore wing. Fore wing 6-7 mm.

Black. Palpi yellow. Mandible reddish yellow except base, with teeth piceous. Pronotum with a yellow spot at humeral angle. Tegula yellow. Tergites tinged with red at apex. Clypeus wholly yellow in ♂. Antenna reddish brown, becoming much yellowish basally, with dorsal side dark brown to black. Fore and middle legs reddish yellow, with trochanters yellow. Hind leg red. Hind coxa black at base in ♀, wholly black in ♂. Hind trochanter yellow, with basal segment extensively piceous. Hind femur infuscated at base and apex. Hind tibia dark brown to black, yellow at extreme base and on flexor surface from base to near apex. Hind tarsus black, with segments whitish at extreme base and reddish on flexor surface.

Holotype (♀) and paratypes, 3 ♀, Sapporo, Hokkaido, 15. vii, 1955, S. Takagi leg. Paratypes: 1 ♀, Sapporo, Hokkaido, 22. vi, 1958, 1 ♀, Kabutonuma, Hokkaido, 1. viii, 1958, 1 ♂, Daisetsu, Hokkaido, 22-26. vii, 1957, S. Momoi leg.

Distribution: Japan (Hokkaido).

11. *Glypta parva*, sp. nov.

♀. Face with very dense and strong punctures tending to be confluent on each side of median tumidity. Frons with strong and dense punctures except at middle and just above each antennal socket, with a very small median horn and with a sharp, transverse lateral carina extending from interspace between antennal sockets. Clypeus evenly convex, about as long as interfoveal space. Malar space about 1.7 as long as width of mandible. Pronotum, mesoscutum, scutellum, mesopleurum, metapleurum and propodeum with strong and very dense punctures tending to be confluent in general. Epomia indistinct. Speculum

very small. Prepectal carina barely extending above level of fore coxa. Propodeum with a transverse subapical carina, a pair of longitudinal median carinae and obsolete costulae. Intercubitus about as long as abscissa 2 of cubitus. Tarsal segment 5 and often also 4 strongly depressed, the former just flat at base. Tergites 1 to 4 and base of tergite 5 with strong and very dense punctures that are tending to be confluent especially on the tergites 1 and 2. Tergite 1 about 1.4 as long as wide, its dorsal keels weak and barely extending to spiracles. Tergite 2 about 0.9 as long as wide, its oblique impressions weak, met at base. Sheath about 0.9 as long as fore wing. Fore wing 5.5 mm.

Black. Clypeus with apical half dark brown. Tegula yellow, weakly piceous partly. Antenna dark brown to black. Fore and middle legs brown, with coxae and greater part of basal segment of trochanters black, the trochanters otherwise yellow. Hind leg black, with following parts yellowish brown to dark brown: apical segment of trochanter and its adjacent portion, tibia at extreme base and medially, and tarsal segments at base.

Holotype (♀) and paratype, 1 ♀, Hikosan, Fukuoka, K. Iwata leg.

Distribution: Japan (Kyushu).

12. *Glypta cymolomiae* Uchida

Glypta cymolomiae Uchida, 1932, Ins. Mats. 6: 157; Haeussler, 1940, Tech. Bull. U. S. Dept. Agr. 728: 24.

Specimens examined: 1 ♀ (type of *cymolomiae*), Kotoni, Hokkaido, 10. viii, 1931, M. Takizawa leg., bred from *Cymolomia mori*; 1 ♀, Sapporo, Hokkaido, 3. vii, 1955, 1 ♀, Sapporo, Hokkaido, 2. vii, 1957, bred from *Peronea bascana*, 1 ♀, Sapporo, Hokkaido, 10. vii, 1957, 1 ♀, Sapporo, Hokkaido, 25. vii, 1959, 1 ♀, Sapporo, Hokkaido, 29. vii, 1959, S. Mo-moi leg.

Hosts: *Grapholita molesta* Busck (after Haeussler, 1940), *Cymolomia mori* Matsumura and *Peronea bascana* F.

Distribution: Japan (Hokkaido; Honshu).

13. *Glypta triangularis*, sp. nov.

Face with fine and dense punctures. Frons a little more coarsely punctate than face, the punctures tending to be confluent transversely. Clypeus about 0.7 as long as interfoveal space, with some punctures at extreme base. Malar space about 1.1 as long as width of mandible. Occipital carina broadly interrupted at middle. Pronotum, mesoscutum, scutellum, mesopleurum, metapleurum and propodeum with strong and dense punctures, the punctures on mesoscutum finer and those on propodeum sparser. Propodeum with petiolar area sharply defined and median area weakly defined, the median area being composed of fused areola and basal area, the petiolar area about 0.4 as long as propodeum in ♀, about 0.3 as long as propodeum in ♂. Tergites 1 to 4 with strong and dense punctures, the punctures sparser on tergite 1. Tergite 1 about 0.8 as long as wide and with sides rounded and not diverging behind spiracles in ♀, about 1.1 as long as wide and with sides straight diverging backwards in ♂, with a weak, transverse preapical impression in ♂. Tergites 2 to 4 with a sharp, transverse subapical impression that forms roughly a triangular central area together with the oblique impressions of the tergite. Tergites 2 and 3 smooth just

before their transverse subapical impression. Tergite 2 about 0.5 as long as wide in ♀, about 0.7 as long as wide in ♂. Tergite 5 with a sharp, transverse median impression in ♂. Sheath about 0.5 as long as fore wing. Fore wing 5.5 mm.

Black. Palpi, mandible except base, apical two thirds of clypeus, humeral angle of pronotum, and tegula, yellow. Antenna black or somewhat brownish. Fore and middle legs reddish yellow, with trochanters yellow. Hind leg red, with trochanter yellow. Hind femur infuscated apically. Hind tibia yellow, dark brown subbasally and apically, with an indistinct (♀) or distinct (♂) brownish stripe on flexor surface. Hind tarsus dark brown to blackish, with segments 1 to 4 yellowish at extreme base and apex.

Holotype (♀), Daisetsu, Hokkaido, 22–26. vii, 1956, S. Momoi leg. Paratype: 1 ♂, Hakoda, Aomori, 13. vii, 1954, T. Kumata leg.

Distribution: Japan (Hokkaido; Honshu).

14. *Glypta breviterebra*, sp. nov. (Fig. 1, M)

♀. Frons strongly rugulose-punctate except a small smooth area just above each antennal socket, the smooth area margined dorsally by two or three transverse rugulae. Face strongly and very densely punctate. Malar space about 0.9 as long as width of mandible. Clypeus about 0.7 as long as interfoveal space. Occipital carina broadly interrupted at middle. Flagellum with normally dense hairs. Pronotum, mesoscutum, scutellum, mesopleurum, metapleurum, and propodeum with strong and very dense punctures tending to be confluent partly. Mesoscutum with interspaces between punctures feebly mat. Epomia indistinct. Speculum very small. Propodeum with sharply defined petiolar area and weakly defined median area (combined area of basal area and areola). Intercubitus about as long as abscissa 2 of cubitus. Tergites 1 to 4 with strong and very dense punctures tending to be confluent. Tergite 1 about 1.1 as long as wide, its dorsal keels extending to about middle, and its lateral keels incomplete behind spiracles. Tergite 2 about 0.8 as long as wide, its oblique impressions distant at base. Sheath about 0.4 as long as fore wing. Fore wing 6–6.5 mm.

Black. Palpi, mandible, clypeus, pronotum at humeral and lower angles and often along upper margin, and tegula, yellow. Tergites tinged with red at apex. Antenna dark brown. Mesopleurum at posterior lower angle, mesoepimeron at upper and lower ends, and metapleurum in the ventral lobe and at lower angle, tinged with yellow or red. Fore and middle legs reddish yellow, with coxae and trochanters yellow. Hind leg red, with trochanter yellow. Hind coxa yellowish dorsally. Hind femur infuscated at apex. Hind tibia darty yellow, dark brown subbasally, blackish apically. Hind tarsus blackish, with segments yellow at base.

Holotype (♀), and paratypes, 4 ♀, Sapporo, Hokkaido, 16. vii, 1955, S. Momoi leg. Paratypes: 2 ♀, Sapporo, Hokkaido, 15. vii, 1955, S. Takagi leg.; 1 ♀, Sapporo, Hokkaido, 10. vi, 1959, T. Kumata leg.

Distribution: Japan (Hokkaido).

15. *Glypta media*, sp. nov. (Fig. 1, L)

This species is very similar to *breviterebra*, differing therefrom by the following

points:—

♀. Frons without a distinct smooth area just above each antennal socket. Flagellum with unusually sparse hairs. Propodeum with a transverse subapical carina alone, the carina weak or obsolescent medially. Tergite 1 with dorsal keels extending barely to spiracles. Sheath about 0.8 as long as fore wing.

Holotype (♀), Sapporo, Hokkaido, 7. vii, 1952, T. Tomioka leg. Paratypes: 1 ♀, Sapporo, Hokkaido, 10. viii, 1958, 1 ♀, Sapporo, Hokkaido, 4. vii, 1955, S. Momoi leg.

Distribution: Japan (Hokkaido).

16. *Glypta maruyamensis* Uchida

Glypta maruyamensis Uchida, 1928, Jour. Fac. Agr., Hokk. Imp. Univ. 25: 74.

Specimens examined: 1 ♀ (lectotype of *maruyamensis*, by present designation), Sapporo, Hokkaido, 28. viii, 1922, T. Uchida leg.; 2 ♀, Apoi, Hokkaido, 21–22. viii, 1957, 1 ♀, Sapporo, Hokkaido, 1. ix, 1955, S. Momoi leg.

Distribution: Japan (Hokkaido).

17. *Glypta glypta* (Ashmead)

Hemiephialtes glypta Ashmead, 1906, Proc. U. S. Nat. Mus. 30: 177.

Hemiephialtes glyphis (!): Matsumura, 1912, Thous. Ins. Japan Suppl. 4: 120.

Glypta glypta: Uchida, 1928, Jour. Fac. Agr., Hokk. Imp. Univ. 25: 73.

Specimens examined: 1 ♀, 1 ♂, Daisetsu, Hokkaido, 22–26. vii, 1957, 6 ♀, Hikosan, Fukuoka, 26. v, 1956, S. Momoi leg.; 2 ♂, Hakusan, Ishikawa, 9–12. viii, 1955, E. Fujita leg.; 1 ♀, Kifune, Kyoto, 13. x, 1957, 1 ♀, Sasayama, Hyogo, 16. x, 1953, K. Iwata leg.; 1 ♂, Ishizuchi, Ehime, 28. vii, 1955, S. Ueda leg.

Distribution: Japan (Hokkaido; Honshu; Shikoku; Kyushu).

NOTES ON LYCORINA ORNATA UCHIDA & MOMOI, 1959. This ichneumonid was originally described from two females taken in Wakayama and Kochi. Recently, by the courtesy of Dr. J. Minamikawa, I have had the chance to examine the following specimens: 2 ♀, 2 ♂, Ishida, Kyoto, 27. viii, 1954, O. Maeda leg., bred from *Adoxophyes orana*.

The present specimens differ from the types by the much extensively yellowish body and legs:—Face and cheek wholly yellow, the former sometimes with a median blackish suffusion just above clypeus. Mesoscutum with a pair of conspicuous yellow longitudinal stripes, which are often interrupted medially. Propodeum with a yellow transverse band along upper margin of the petiolar area, the band extending downwards to base of hind coxa and broadened on metapleurum. Tergites almost reddish brown to piceous black, and yellow beyond the apical transverse impression and darkened on the tubercles. Fore and middle coxae yellow extensively. Hind trochanter dark brown. Hind tarsus reddish brown, more or less infuscated. The male has hitherto been unknown. It is very similar to the female, differing by the slenderer body and legs: hind tarsus almost as long as hind tibia, its segment 4 being about 1.5 times as long as wide. In the female the hind tarsus is much shorter than the tibia, its segment 4 about as long as wide. As stated in the original description, this species is easily distinguishable from *L. triangulifera* Holmgren by the short hind tarsus in the female. It differs also by the presence of the conspicuous yellow maculae on the body in both sexes.

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